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MADRAS RECORD OFFICE.

Government of Madras.

Public works DEPARTMENT.

G.O. No. 2585 Press/Mis.

126-29

Dated 6 8 1869.

Not to be folded or roughly handled

Proceedings of the Madras Government, Public Works Department, 6th August 1869.

Read the following papers :—

No. 126. Minute by the Right Honorable the President.

(Here enter 14th June 1869.)

No. 127. Minute by the Honorable H. D. PHILLIPS.

(Here enter 28th June 1869.)

No. 128. Minute by the Honorable A. J. ARBUTHNOT.

(Here enter 29th June 1869.)

No. 129. ORDER THEREON, 6th August 1869, No. 2,585.

IRRIGATION, No. 9.

THE report submitted by the Chief Engineer for Irrigation in December last on the results of the investigations which have been in progress for the extension of irrigation in this Presidency, brings under notice the following seven projects which, in consideration of their magnitude and importance, merit the special and sustained attention of Government:—

I.—The development of irrigation from the Rooshkolia river in Ganjam;

II.—The completion of the irrigation channels of the Godavery Delta;

III.—The extension of the scheme of irrigation in the Delta of the Kistna;

IV.—The Sungum scheme for the irrigation of the northern border of the Delta of the Pennair;

V.—The regulation and extension of irrigation under the Cauvery;

VI.—The deflection of the Perryaur river from its course westwards to the basin of the Vigay in the Madura District;

VII.—The extension of irrigation from the Tambrapoorney in Tinnevelly.

2. Active measures are in progress for pushing forward either the examination or the actual execution of the first four and of the last of these projects, and His Excellency in Council is satisfied that little can be done at present to accelerate operations in connection with these projects, which have been entrusted to officers in whose experience and ability the Government have reason to repose every confidence.

3. The two projects which remain to be considered are those that have for their object the fuller utilization of the volume of the Cauvery river, and the turning of the waters of the Perryaur into the Madura District.

4. In connection with the Cauvery the only scheme of any importance which has been brought forward for the extension of cultivation out of the delta is the construction of an anicut at or near Nerinjepett, about twenty-four miles above Erode, for the irrigation of a considerable extent of land in Coimbatore, and, as far as possible, a like tract in Salem. The plans and estimates for this project are

now in the hands of the Chief Engineer for Irrigation, and will shortly be brought under the consideration of Government. It is possible, however, that the discovery of other and equally promising sites for the erection of anicuts, to divert the waters of this never-failing river to the surface of suitably situated lands in its vicinity, may reward a carefully conducted examination of the whole course of its stream, for, though Colonel Anderson only refers to the restoration of the Ponairy tank between the Vellar and the Coleroon on the north of the Delta, some Revenue officers speak very hopefully of the practicability not only of extending existing channels, such as the very useful one known as the Calingaroyen, on the south, but of the possibility of constructing an anicut across the Cauvery within the Trichinopoly District some way above the head of the Delta.

5. Works are in progress of construction in Tanjore for regulating the distribution of the water of the Cauvery according to the extent of culturable land under each of its main branches, and a scheme for placing the supply of the river under thorough control at the head of the Delta, and for perfecting the arrangements for distribution is under preparation, and will shortly, it is believed, be submitted. That scheme, framed on most carefully ascertained levels and on the most complete data, will, however, embrace only the regulation and distribution of the natural flow of the Cauvery, and though this will enable the utmost to be made of the water now available, and will guard the Delta from the effect of floods, it will not secure the means of ensuring a sufficient supply of water during the critical time between the two monsoons when the river is frequently so low as to endanger large areas of crop being lost from drought, nor will it allow of an augmentation of second crop cultivation from which to obtain full advantage from the new works, or a return on their cost.

6. For the security of present cultivation, therefore, and for the realization of a second crop on a large extent of land which is now comparatively useless for half the year, it is necessary that, in combination with the new regulating works, the flow of the river should, as far as possible, be equalized through the monsoon months, and maintained in considerable volume during the dry season. This can only be effected by arresting and storing large quantities of the rain-fall in the upper basins of the main river or of its affluents, where suitable sites for the formation of capacious reservoirs, it is believed, may be found in various favourable localities in the course of the Moyar, the Bowany, the Noyel, and the Ambaravutty.

7. Explorations of the two first-named streams were some years ago made by Mr. Fraser, but having been suspended for financial or other reasons, all that is on record regarding them are some unfinished surveys. These may be of use in forming the basis of further enquiries, but, as the success of the measures which the Government are so desirous of being able to carry out for the improvement and extension of irrigation, both first and second crop, not only in the Delta of the Cauvery but wherever the water of that river can be led, is, there can be no doubt, contingent on the practicability of storing sufficient surplus flood water in the basins of its tributaries, the Government consider that the examination of all those tributaries should be taken up in the most careful and thorough manner, in conjunction with a full and complete inquiry into the irrigational capabilities of the Cauvery and of

the extent to which these may be susceptible of improvement and extension by means of such a reserve of water as it may be found practicable to store. The Government believe that much light on the question of how far such water may advantageously be applied within the Delta is likely to be thrown by Captain Oakes in his forthcoming report on the proposed regulating works of Tanjore, and the information thus obtained may be usefully incorporated with the comprehensive view of the capacity for irrigational improvement of the Cauvery which the Government wish to have laid before them.

8. For the effective prosecution of the necessary enquiries and investigations, and for the preparation of the requisite surveys with plans and estimates to allow of a complete project, based on the principle of the storage of flood waters and comprehending the whole course of the Cauvery, being presented to the Government of India as a work complete in itself to be carried out with loan funds, the Government are of opinion that the services of a thoroughly qualified and experienced Officer of Engineers should be specially assigned, and His Excellency the Governor in Council accordingly resolves to nominate Captain C. J. Smith for the duty. That Officer is at present in England, but he has intimated his willingness to return immediately to take up any special duty of this nature, and he has been communicated with, and will shortly, it is expected, be available. Captain Smith will require the aid of at least three Assistant Engineers, in addition to the Officer who is now engaged in preparing plans for improvements in the Delta. Pending Captain Smith's arrival, two of the Assistant Engineers in question will be employed on the prosecution of the Reservoir surveys commenced by Mr. Fraser on the headwaters of the Bowany and Moyar, and the third on the exploration of the Noyel.

9. Should a sufficient number of qualified Assistants of the regular Establishment not be disposable, application will be made to the Government of India for permission to entertain the additional Assistants that may be required.

10. The Perryaur Project, which, in its general features, is so well known, is the other scheme for the thorough investigation and preparation of which it is necessary that some special agency should be provided. The more closely the project is scrutinized the more promising it appears, and as it is one of the most vital utility to the Madura District, it is of importance that the investigations which are now being conducted should be prosecuted with energy. Three officers are now employed upon those investigations, and, if necessary, a fourth will be added to the number, and the whole will be placed under the direction of Captain Pennycuick. It is believed that two of the officers may be employed above the ghaut in the survey of the basin of the lake and the site of the bund, while the other, assisted by a competent staff of Surveyors, may be engaged in the preparation of plans of the proposed channels and in the survey of the irrigable area in the plains. Major Mullins will, as soon as his other duties permit, proceed to Madura for the purpose of preparing, in conjunction with the officers on the spot, a definitive plan for the construction of the dam which it is necessary to throw across the course of the Perryaur to turn its waters into the Cumbum Valley, and he will be

requested to endeavour, if possible, to submit his designs, with plans and estimates of all the necessary works, both above and below the ghaut, in time for the Budget of 1870-71.

(True Extract.)

Colonel, R.E.,
Secretary to Government.

To the Chief Engineer for Irrigation.
,, Revenue Department.
To Superintending Engineers.
To the Controller of Public Works Accounts.

Exd. S. T. Augustin.

Minute by His Excellency
The President. —

The Report upon the irrigation works in this Presidency submitted by Colonel Anderson in the month of December last presents seven projects of capital interest and importance all of which are in course of enquiry or execution and all of which merit the sustained attention and supervision of Government. These projects are: (1) The development of irrigation from the Rooshkolea River in Ganjam. (2) The completion of the irrigation Channels of the Godavery Delta. (3) The extension of the scheme of irrigation in the Delta of the Kistna. (4) The Sungum scheme for the irrigation of the Northern border of the Delta of the Pennair. (5) The regulation and

extension of irrigation on the Cauvery. (6) The deflection of the Perreair River from its course westwards to the basin of the Vigay in the Madura District. (7) The extension of irrigation from the River Tamlrapoorney in Tinnevelly.

II After repeated consultations with the Secretary for the Public works Department I am satisfied that little could be done to accelerate the progress of the first four and of the last of these projects.

The Survey of the Roorkholea is being prosecuted under the zealous direction of Captain Beckley with a Special Establishment and the scheme will be brought forward as the comprehensive application of the water power of an entire river with mountain reservoirs

distribution canals and auxiliary Tanks in the plains

The Superintending Engineer 1st Division is engaged in preparing a ~~complete and~~ detailed survey and estimate for the completion of the irrigational system of the Godavery Delta. He has commensurate agencies at his disposal. The works are in course of contemporaneous execution.

A like course is being pursued with reference to the Kistna. The Superintending Engineer 2d Division has here the superior direction of the Surveys which may not be terminated in less than two years but meanwhile the sanctioned extensions and improvements are being carried out with ample appropriations of loan funds and as fast as the powers of supervision and the supply of labour will safely permit.

The Plans for the extension of irrigation on the North bank of the Pennair are in the hands of Mr Smith an officer of experience and energy. They will soon be terminated and laid before government. Mr Smith will then be transferred to certain subordinate projects in the same district.

The Sheevagungam Anicut is advancing under the direction of Lt. Shepherd. It will create an irrigated Delta at the foot of the Tambrapoorney. The middle and upper waters of the same stream are being examined by Captain Payne with the benefit of information and suggestions supplied by the Collector of the District. These enquiries may, it is hoped, result in the submission ~~and~~ of a comprehensive design for the storage and utilisation of the flood waters which have hitherto run to waste. The whole Drainage area of the

Tambrapoorney and its romantic tributaries from the ghauts to the Sea would thus be dealt with under the law system as a single irrigation work.

III I am assured by Colonel Orr that with reference to the five projects enumerated above nothing more can for the present be effected by the intervention of Government. They are all advancing deliberately but safely under the guidance of competent professional authority. No good result would be attained, in the opinion of the Secretary for the Public works Department, by the increase of superior executive agency or by a greater application of labour. As much is being done as can be superintended and.

a greater pressure for on the labour resources of the country would disturb cultivation raise wages and draw workmen wastefully from one project to another. -

The Cauvery and Penncair projects remain to be considered and to these I now invite the attention of my Colleagues.

IV. The Cauvery is the greatest vehicle of irrigation in this Presidency and still perhaps the greatest in India though its supremacy may hereafter be usurped by the Ganges or the Indus. There is no doubt however that the benefits conferred by this celebrated river are still susceptible of development in several

ways. (1) by an increase of the area of cultivation. (2) By improvement and economy of distribution. (3) By the storage of the floodwaters so as to ensure in all seasons a sufficient supply to mature one crop and to provide an additional supply for a second crop where a second can be profitably raised.

V. The only project for an increase of the area of cultivation under the Cauvery now before us, of any importance, is connected with the contemplated construction of a new weir on the river near the old native anicut at Nerengipett in the Salem District. This work, it is estimated may supply water to

about 20.000 acres.
Colonel Anderson however points to the restoration of the great Ponnaciy Tank between the Vellaur and the Coleroon on the northern margin of the Delta while the Revenue officers with whom I have had occasion to converse on this subject speak of the practicability of an extension on the Southern Verge of the Delta from existing Channels as well as of the possibility of constructing another anicut across the main river in the Trichinopoly District.

VI. The regulation or distribution of the water supply of the Cauvery at the Head of the Delta has been the subject of careful study and an elaborate

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project for this purpose will shortly be submitted by Captain Oakes. A plan for the correction of many defects in the long winding canal known as the Calingarayen Channel, which skirts the right bank of the Cauvery between the Bowany and the ~~Amravutty~~ Amravutty rivers has also been prepared and Colonel Anderson ~~points~~ affirms that similar improvements might be introduced in other old native channels of the same character in the Trichinopoly District, at a lower stage of the river, which are independent of the great System under the upper Anicut.

VII. Whatever advantages

may be extended both
from an enlargement
of the irrigated area
and from rectification
and thrift in the repartition
~~distribution~~ of water it
cannot be questioned that
the chief hope of increased
benefits and profits
in connection with the
Cauvery is to be sought
in ~~the~~ storage of water in mountain reservoirs
which if effected in a
sufficient quantity would
not only guarantee the
realisation of the single
crop now cultivated but
afford the means of producing
a second harvest over a
vast extent of ground
which is ~~now~~ comparatively
useless for half the
year. The localities
contemplated for the
construction of these
artificial basins are
to be found in this
Presidency on the head

waters of the Bowany, 15
the Noyel and the
Amravutty Rivers;
beyond ~~our~~ this Presidency
in Coorg and Mysore.
The limited basis of our
information on the subject
at present lies in some
unfinished surveys for
reservoirs on the
Neil[illegible] Kerry tributaries
of the Cauvery prepared
by Mr. W. Fraser
several years ago.

VIII. To what extent,
over what area of land,
water could be advantageously
used for a second crop,
if supplied from storage
reservoirs in the basin
of the Cauvery does not
appear. No comprehensive
report upon the subject
has been hitherto framed
as far as I am aware.
It is expected that much
light will be thrown upon
the question in Captain

oakes's ~~extract~~ report on the regulation works of the Delta but to obtain a complete view of the increase of revenue and food supply contingent on the use of this method. it would be necessary to obtain reports from the Collectors of the various districts traversed by the River and it's numerous affluents.

IX. Such in a few words is the fragmentary state of our projects and knowledge in connection with the Cauvery a river so respectable from it's ancient and widely diffused utility, the headwinner of a million people. I propose to deal with it as we are dealing on a far smaller scale with the Rooshkolia and

the Tambrapoorney, to regard it in the light of a single ~~irrigational~~ ~~power~~ project, and while pushing forward isolated works within its sphere of proved or probable utility, to obtain from an officer specially selected for this duty a comprehensive report of the active irrigational power of the whole stream and of the receptive irrigational capacities of its basin within the jurisdiction of the Madras Government. In this way the stronger projects would help the weaker and the whole might be ~~found~~ consolidated as a single loan work under the Sanction of the Supreme Government.

7. Colonel Orr has indicated Captain C. J. Smith of the Royal Engineers as an officer capable of undertaking this work of generalization should it receive the sanction of Government but pending the arrival of Captain Smith from England it is proposed to place four officers on special duty one for the investigation of the contemplated extensions of cultivation in the Delta, two for the prosecution of Mr. Frasers' reservoir surveys on the headwaters of the Bowany and one for the exploration of the Sources of the Noyel and Amravutty. The Secretary for the Public works Department

entertains no doubt that
Captain Smith would be
happy to proceed to
Madras at once on
business so important
as a general review
of the Cauvery irrigation
It was my intention
to propose that the
duty referred to should
be entrusted to
Captain Oakes when
his report on the
regulation works had
been sent in to
government, but I
now learn that
Captain Oakes will
find it necessary
to proceed to England
for the benefit of
his health and
that Colonel
Walker is in the
same position.

XI. The Perriaur project is so well known to Government in it's general features that I need not describe it at length. It consists in the discharge of a river into the Madura plain which now runs to the Travancore Backwater. For this purpose a mound has to be thrown across the valley of the Perriaur by which the arrested waters can be raised to such an elevation that with the assistance of a moderate cutting they can be conveyed over a depression in the eastern water shed to the basin of the Vigay. The object is to save and fertilize an extensive and unhappy portion of the Madura District. The main difficulty lies

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in the construction of a dam of unprecedented magnitude partly in the bed of a furious torrent and in a distant, desert, fever stricken region. The more closely the project is scrutinized however the more promising it appears and Captain Pennycuick has recently arrived on the Scene with impressions even more sanguine than those entertained by Captain Payne and Captain Ryves.

XII. I propose that Government should sanction the employment of two Officers above the Ghaut in the survey of the basin

of the Lake and the site of the bund during the healthy season while two others are employed in planning the channels and delineating the irrigable area in the plain. In the unhealthy season the gentlemen engaged upon the hills would join their fellow labourers in the low country. The whole party ~~might~~ be ~~placed~~ appointed on special duty under the direction of Captain Pennycuick. As soon as the Report of the Irrigation and Public works Commission has been presented to Government Captain

Mullins is, I believe, prepared to proceed to Madura for the purpose of framing, in connection with the officers employed on the spot, a definitive plan for closing the Perriaur valley. Captain Mullins might be instructed to submit his design for the dam with plans and estimates of the works above and below the ghauts if possible before the end of December so that the project may find a place in the budget of the ensuing official year.

XIII. Should the suggestions submitted above meet with the concurrence of my Colleagues it will be necessary to strengthen the Department of public works by the temporary engagement of ~~at least three~~ several executive Engineers with some experience of works in this Country. Colonel Orr believes that three might be found of the character required. I submit that they may be entertained ~~engaged~~ for two years on Salaries not exceeding Rs. 800. per month. They ~~will~~ would probably be employed in the first instance

on the survey of the Cauvery Reservoirs but the Secretary for the Public Works Department will probably be left unfettered in the destination of his subordinates to the branches of duty for which they may appear respectively best fitted.

Napier

Madras. June 14th 1869.

Though I have little faith in the completion of the reservoir basins for the supply of the Cauvery, I am sensible that His Lordship's proposals are deserving of all the support the Government can give them — W.D.

28 June 69

Minute.

I entirely concur in Lord Napier's proposals. A. J. Arbuthnot

29th June 1869

P.W. 1869 Dept

(5)

No 3008

Minute by the Right Hon: the President

Dated 29 June } 69
Rd 19 July }

Regarding the Irrigation Projects under investigation in the Madras Presidency.

Order No 2585-6/64 Augt./69.

No 126 @ 128

2. 21st July 1869 - R. 265

F. W. Dept.

2585

No 2585

29

Proceedings of the Madras Govt.
Under date the 6th Augt 1869
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W.A.C.

19 8 / 12

To

3 The Chief Engr. for Irrigation
21 " Revn. Depy. S
130 " S. Engrs. S
4 " Controller S

Despd. 10/8/69.

Revised Copies — 13/8/69.

11-2-18 B-II

Lre 3008

Govt. of {1869} Madras.

PUBLIC WORKS.

To The Chief Engineer
for Irrigation

Dated

Recd. Encl.

G. O. 6th Augt 1869. No. 2585

Nos. 126 @ 129

Irrigation Projects. Passing orders on papers relative to the Irrigation Projects under investigation in the Madras Presidency.